

حمل الآن

مجاناً وحصرياً

# المراجعة رقم (1)

## اختبار شهر مارس



### Lesson 4 Scratch

#### Definition:

» **Scratch Program:** It is a visual and easy-to-use educational tool for learning programming through games, animations, music, and more.



#### Key Points:

#### » Scratch Program Features:

- ① **Simple Interface:** It uses and orders visual blocks to form programs.
- ② **Educational:** It is designed to teach basic programming concepts in a fun way.
- ③ **Free:** It is available for download from its official website for free.
- ④ **Creative Thinking:** It develops skills in creative thinking and problem-solving.
- ⑤ **Problem-solving Skills:** It solves problems in a logical way.
- ⑥ **Collaboration:** It enhances teamwork skills.
- ⑦ **Foundation:** It provides a strong start for learning more complex programming languages.
- ⑧ **Sharing:** Its projects can be shared with others.



#### » Program Interface:

- Menu Bar
- Command Blocks Area
- Script Area: It collects programming sections.
- Stage Area: It shows project results.
- Sprite Object
- Sprites Area: It contains the project's objects.

#### » Coordinates:

- **Determine Coordinates:** X=..... (horizontal), Y=..... (vertical)
- **Change Coordinates:** Drag and drop the sprite to a new position.

### » Implement the project:

- To execute the project, click on the icon .
- To stop the execution of the project, click on the icon .

### » Saving the Project:

- File Menu: Choose "Save to your computer".
- The file extension is **Sb3**.

## Lesson 5 Sprites Area in Scratch

### Definition:

» **Sprites Area:** It contains the sprites used in the project.

### Key Points:

### » Sprites Area Features:

- 1 **Name:** It is modified by clicking and renaming.
- 2 **Location:** It determines the sprite's position (X, Y values).
- 3 **Direction:** It changes the sprite's movement direction.
- 4 **Visibility:** It shows or hides the sprite.
- 5 **Size:** It changes the sprite's size.
- 6 **Delete:** It removes the sprite.
- 7 **Add:** It is used to choose a new sprite.

### » Adding a New Sprite:

- Choose Sprite: Select Basketball.
- Remove: Delete the cat sprite.

### » Project 2: Moving the Ball

- **Objective:** To move the ball randomly, make a sound, repeat 10 times.

### » Steps:

- 1 **Motion:** Choose "Go to random position".
- 2 **Sound:** Choose "Play sound".
- 3 **Control:** Choose the "Repeat" command.

④ **Events:** Choose the “When Clicked” command.

### » Project 3: Spaceship

– **Objective:** To move a spaceship randomly, make a sound, change size, repeat 5 times, start from (0, 0).

– **Steps:**

① **Insert Sprite:** Add Rocketship.

② **Remove:** Delete the cat sprite.

③ **Background:** Choose “Space”.

### » Square Drawing Project:

① **Open Project:** Start a new project.

② **Select Pen:** Drag the “pen” block to start drawing.

③ **Set Color and Size:** Use “Set Pen Color to” and “Set Pen Size to” blocks.

④ **Move the Pen:** Use “Go to x:y:” blocks to draw lines.

⑤ **Repeat the Steps:** Draw more lines to form shapes.

### » Drawing a circle:

» Use the “Repeat” block to repeat the process of drawing short lines at different angles.

### » Notes:

① **Drawing Shapes:** Set start and end points for lines.

② **Adding Details:** Add features like eyes, mouth, and ears.

## Lesson 6 Principles of Python

### Definition:

» **Python:** It is a programming language widely used in data science, machine learning, and web development.





## Key Points:

### » Features of Python:

- 1 **Open Source:** It is free and open for everyone to use and develop.
- 2 **Interpreted Language:** It translates codes line by line, making error detection easier.
- 3 **Versatility:** It is used in web development, data science, AI, machine learning, and game programming.
- 4 **Easy-to-Use:** It is simple and organized, with syntax similar to English.
- 5 **Integration:** It can be integrated with languages like C, C++, and Java.
- 6 **Libraries:** Numerous libraries are available for various tasks.

### » Python Libraries:

- » **NumPy:** It is used in data science, statistics, and AI.
- » **Pandas:** It is used for data analysis and processing.
- » **Matplotlib:** It is used for creating graphs and charts.

### » How to Download Python:

- 1 **Visit:** Go to the official Python website [www.python.org](http://www.python.org).
- 2 **Choose Download:** Select the download option.
- 3 **Select System:** Choose your operating system (Windows, Mac, or Linux).
- 4 **Choose Bit Version:** Select 64-bit or 32-bit based on your device specifications.
- 5 **Install:** Download and install the program, following the instructions.

## Lesson 7 Variables in Python

### Definition:

- » **Variables:** They are reserved places in memory to store values that can change during program execution.

**Key Points:****» Conditions for Naming Variables in Python:**

- 1 Start with a letter or underscore (\_).
- 2 Contain letters (A-Z), numbers, or underscore (\_).
- 3 Avoid reserved words.

**» Types of Variables in Python:**

- 1 **Numbers:** To store numerical values.
  - **Integer Variables (int):**  $X = 5, Y = 10$
  - **Decimal Variables (float):**  $Z = 5.25, A = 8.32$
- 2 **Strings:** To store texts, enclosed in single or double quotes.
  - **Examples:** `Name = "Taher", City = 'Cairo'`
- 3 **Booleans:** They contain only two values, True or False.
  - **Examples:** `Is_taher_student = False, Is_taher_a_teacher = True`

**» Python Program Interface:**

- 1 **Interactive Python Interface (Python Shell):** It is used to write and execute simple codes directly.
  - It is automatically installed when you install the language.
- 2 **Text Editor:** It is used to write longer, complex codes and save them for later execution.

**» Using the type ( ) Function:**

- **Purpose:** To determine the type of a variable.

**» Simple Python Code Using Variables:**

- **Print Function:** It displays text, variables, or results of mathematical operations on the output screen.



### Model Exam

1

#### 1 Choose the correct answer:

- 1 The Sprites Area in Scratch contains .....  
a. backgrounds    b. sprites    c. sounds    d. blocks
- 2 The X and Y values in Scratch represent the .....  
a. size of the sprite    b. direction of the sprite  
c. location of the sprite    d. color of the sprite
- 3 Scratch allows students to learn ..... principles.  
a. drawing    b. music    c. programming    d. all of them
- 4 Scratch can be used to create .....  
a. games    b. animations    c. simulations    d. all of them
- 5 The text value of the variable is placed between the signs .....  
a. " "    b. < >    c. > =    d. = <
- 6 To display texts, variables, or even the results of mathematical operations, we use the function .....  
a. Cos( )    b. Type( )    c. Print( )    d. Sin( )
- 7 In Scratch, to add sound effects to the sprite, we use the command .....  
a. Repeat    b. Looks  
c. Play Sound    d. Choose a Backdrop
- 8 The file extension for a Scratch project is .....  
a. Docx    b. Sb3    c. Bmp    d. Jpg

#### 2 Put (✓) or (X):

- 1 In the Scratch program, we use the coordinates (x, Y) to determine the location of a sprite on the stage. ( )

- 2 Python is one of the most difficult programming languages. ( )
- 3 In Scratch, the name of the sprite can be changed multiple times. ( )
- 4 Python is used in developing web applications, data science, artificial intelligence, machine learning, and game programming. ( )
- 5 The Scratch program is paid. ( )
- 6 Python can be integrated with other languages, such as C, C ++, and Java. ( )
- 7 The texts of variables in Python are placed between single quotation marks ' ' or double quotation marks " ". ( )

## Model Exam

### 2

#### 1 Choose the correct answer: سلسلة كثر

- 1 To add a new sprite, click on ..... .
  - a. Choose Sprite
  - b. Delete Sprite
  - c. Rename Sprite
  - d. Move Sprite
- 2 The "Go to random position" command is found in the ..... group.
  - a. Motion
  - b. Sound
  - c. Control
  - d. Events
- 3 The "Pen" extension is added by clicking on ..... .
  - a. Choose Sprite
  - b. Add Extension
  - c. Delete Sprite
  - d. Change Backdrop
- 4 Scratch is a fun and ..... educational tool.
  - a. difficult-to-use
  - b. easy-to-use
  - c. text-based
  - d. none of them
- 5 Scratch helps enhance ..... skills.
  - a. problem-solving
  - b. collaboration
  - c. creative thinking
  - d. all of them
- 6 To know the type of variable statement in Python, we use the function ..... .
  - a. Cos( )
  - b. Type( )
  - c. Print( )
  - d. Sin( )



- 7 The Scratch program interface areas are like ..... .  
 a. command blocks   b. stages   c. both a & b   d. none of them
- 8 To modify (rename) the sprite name, click on ..... .  
 a. Sprite and rename it   b. Sprite and delete it  
 c. Sprite and add it   d. Sprite and change its color

## 2 Put (✓) or (X):

- 1 Is\_taher\_student = False: The statement type of the variable Is\_taher\_student is logical (Boolean). ( )
- 2 To know the type of the variable, we do not need to use the type( ) function. ( )
- 3 In Scratch, the horizontal and vertical axes are used to determine the current position of the sprite on the stage. ( )
- 4 In the Scratch program, students face difficulty in sharing projects with others. ( )
- 5 The direction of the object's movement in Scratch can be changed by pressing the word Direction. ( )
- 6 To modify the object's name in Scratch, press its current name and rename it. ( )
- 7 Only one object can be added to the stage in Scratch. ( )

## Model Exam

### 3

## 1 Choose the correct answer:

- 1 To make the ball move randomly, use the ..... command.  
 a. Go to random position   b. Move 10 steps  
 c. Turn 15 degrees   d. none of them
- 2 To draw a geometric shape, you need to set the ..... points of the lines.  
 a. random   b. middle   c. start and end   d. none of them

- 3 The "Repeat" command is used to ..... .
  - a. delete a sprite
  - b. execute actions multiple times
  - c. change the backdrop
  - d. play a sound
- 4 To execute the project, click on the ..... icon.
  - a. green flag
  - b. red stop sign
  - c. blue arrow
  - d. none of them
- 5 To save your Scratch project, select the File menu, then select ..... .
  - a. Save to your computer
  - b. Sprites
  - c. Creative thinking
  - d. Learn principles of programming
- 6 If the movement is too fast, the command ..... from Control Blocks is used.
  - a. Wait
  - b. Repeat
  - c. Forever
  - d. Else
- 7 The function ..... is used to display texts or values on the output screen.
  - a. Cos( )
  - b. Type( )
  - c. Print( )
  - d. Sin( )
- 8 A new background for the project is inserted by pressing ..... .
  - a. Script Area
  - b. Stage
  - c. Choose Sprite
  - d. Choose a Backdrop

## 2 Put (✓) or (X):

- 1 When naming variables, reserved words in the Python language may be used. ( )
- 2  $Y = 10$ : The statement type of the variable Y is numeric for an integer. ( )
- 3 `City = "Cairo"`: The statement type of the variable City is text. ( )
- 4 Scratch is used in teaching advanced programming. ( )
- 5 In Scratch, a code segment is a combination of commands arranged in a specific order. ( )
- 6 A Scratch project can be saved from the File menu by selecting 'Save to your computer.' ( )
- 7 The sprites used in the project appear in the Sprites Area. ( )

# Model Exam

## 4

### 1 Choose the correct answer:

- 1 To stop the execution of the project, click on the ..... icon.
  - a. green flag
  - b. red stop
  - c. paintbrush
  - d. Scratch logo
- 2 To execute the project's steps, use the command ..... .
  - a. Change x by 10
  - b. Move 10 steps
  - c. Wait 1 seconds
  - d. When green flag clicked
- 3 To move the pen to a specific point, use the ..... block.
  - a. Go to x: y:
  - b. Move 10 steps
  - c. Turn 15 degrees
  - d. none of them
- 4 Scratch areas are blocks, script, stage, and ..... .
  - a. save to your computer
  - b. sprites
  - c. creative thinking
  - d. learn principles of programming
- 5 Scratch program helps students to learn principles of programming and ..... .
  - a. save to your computer
  - b. sprites
  - c. creative thinking
  - d. simple interface
- 6 To save a project, choose "Save to your computer" from the ..... menu.
  - a. File
  - b. Edit
  - c. View
  - d. Help
- 7 Decimal variables in Python are stored as ..... data types.
  - a. string
  - b. int
  - c. float
  - d. Boolean
- 8 The "When Clicked" command is found in the ..... group.
  - a. Sound
  - b. Motion
  - c. Control
  - d. Events

### 2 Put (✓) or (X):

- 1 The sprite cannot be deleted from the stage in Scratch. ( )

- 2 Scratch helps the students to learn the basics of programming in an interesting and exciting way. ( )
- 3 To display Hello on the stage, select the command Say Hello from the control Blocks. ( )
- 4 Scratch program can be download from its official website. ( )
- 5 TAHER, Taher, tahir, TaheR are 4 names for variables in the Python language. ( )
- 6 The variable name contains letters (A-Z), numbers, or an underscore sign \_ . ( )
- 7 Python is an interpreted language because it translates programming codes line by line. ( )

## Model Exam

5

### 1 Choose the correct answer:

- 1 The "Pen" extension is used to ..... .
  - a. move sprites
  - b. draw shapes and lines
  - c. play sounds
  - d. change the background
- 2 The "Set Pen Color to" block is used to ..... .
  - a. change the pen size
  - b. change the pen color
  - c. move the pen
  - d. delete the pen
- 3 When you make a Scratch project, to move the sprite, use the ..... command group.
  - a. Looks
  - b. Motion
  - c. Events
  - d. Control
- 4 To make the sprite move 30 steps, change the value in the "Move" block to ..... .
  - a. 10
  - b. 30
  - c. 60
  - d. 100
- 5 To make the ball move randomly, use the ..... command.
  - a. Go to random position
  - b. Move 10 steps
  - c. Turn 15 degrees
  - d. none of them

- ## 2 Put (✓) or (x):

- 1 In the Wait command, the wait value of 1 represents 1 second. ( )
- 2 We use click and drag-and-drop to interact with any command inside the code segment. ( )
- 3 It is not permissible to create applications and websites in Python.( )
- 4 Python is used in developing data science and machine learning.( )
- 5 The variable name must not begin with a letter or an underscore sign \_.( )
- 6 The Scratch program offers a wide range of ideas that can be programmed. ( )
- 7 In the Scratch program, the result of the work or project appears in the Blocks area. ( )





# Answers

## Model Exam 1

1	1 b	2 c	3 c	4 d
	5 a	6 c	7 c	8 b
2	1 ✓	2 ✗	3 ✓	4 ✓
	5 ✗	6 ✓	7 ✓	

## Model Exam 2

1	1 a	2 a	3 b	4 b
	5 d	6 b	7 c	8 a
2	1 ✓	2 ✗	3 ✓	4 ✗
	5 ✓	6 ✓	7 ✗	

## Model Exam 3

1	1 a	2 c	3 b	4 a
	5 a	6 a	7 c	8 d
2	1 ✗	2 ✓	3 ✓	4 ✗
	5 ✓	6 ✓	7 ✓	

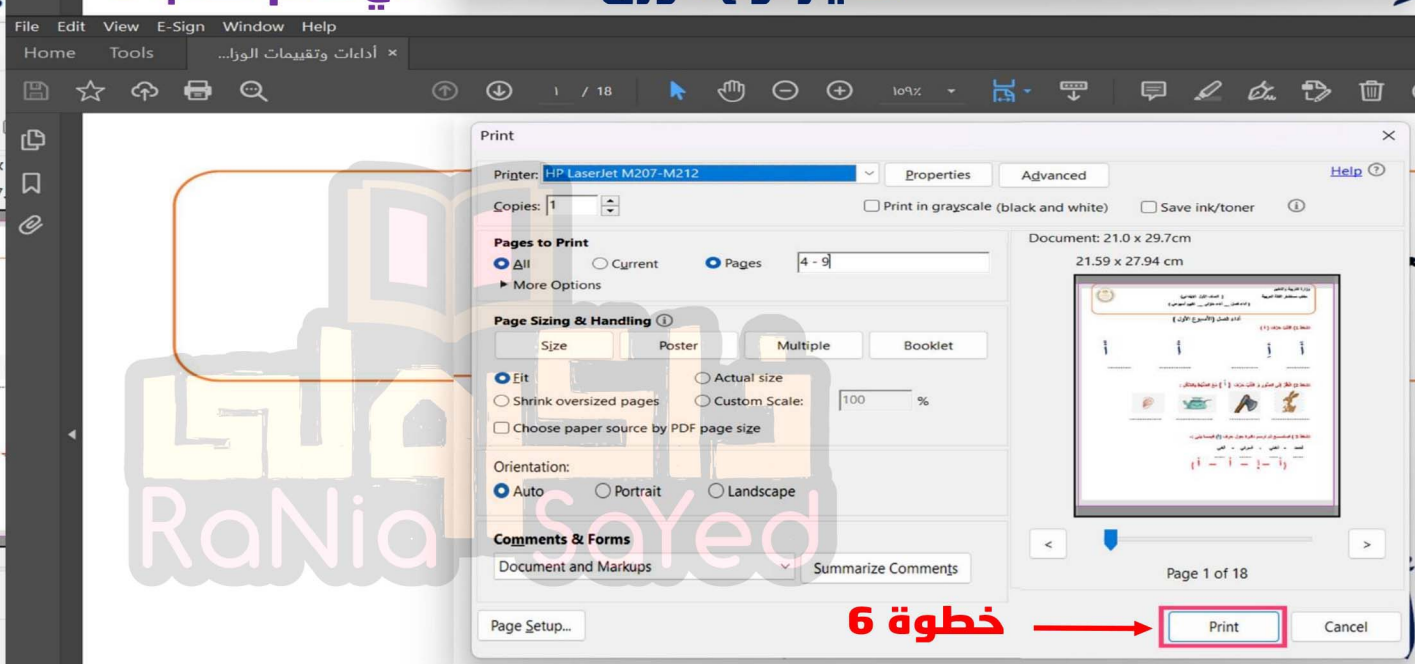
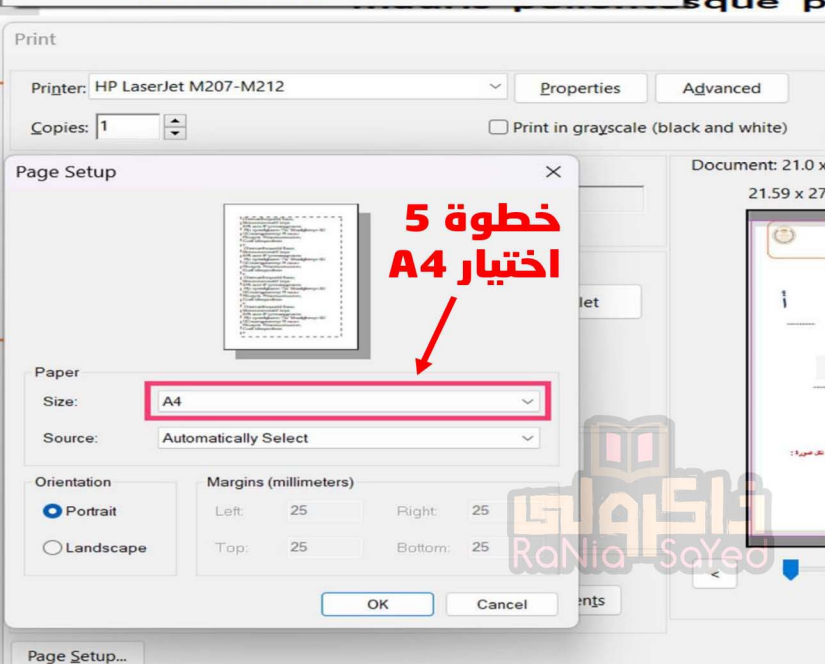
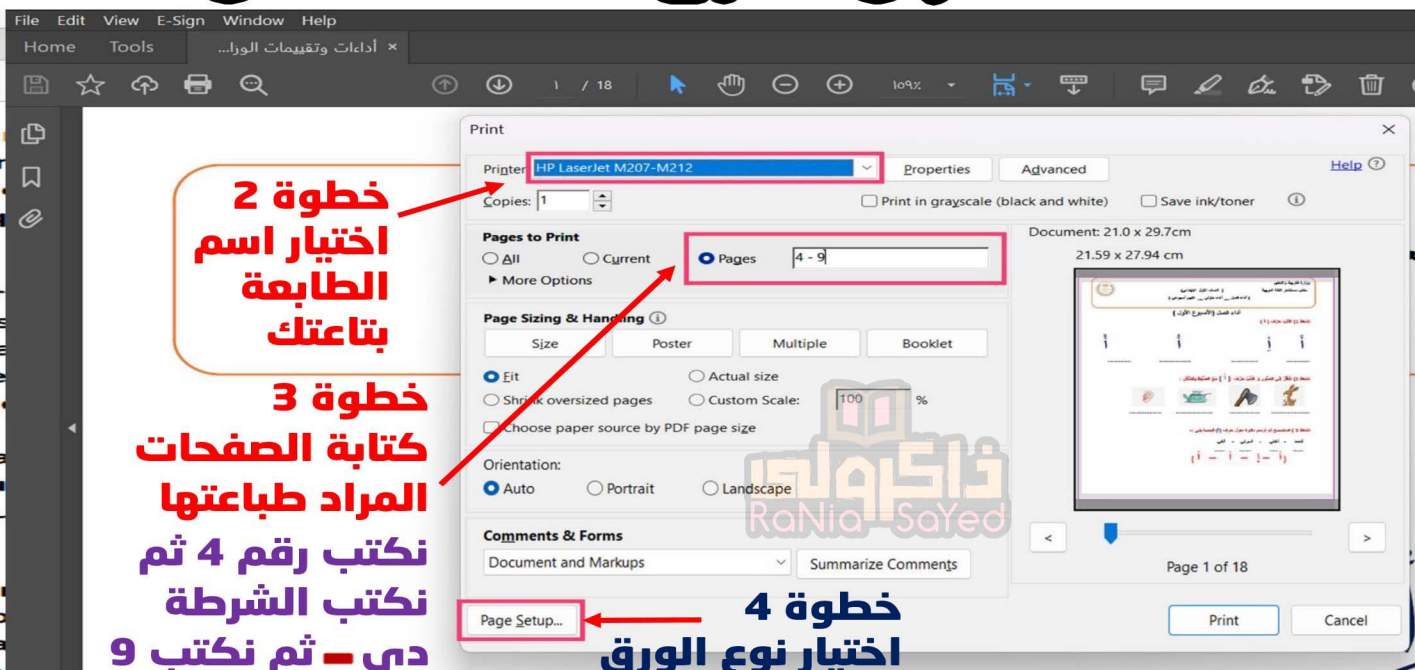
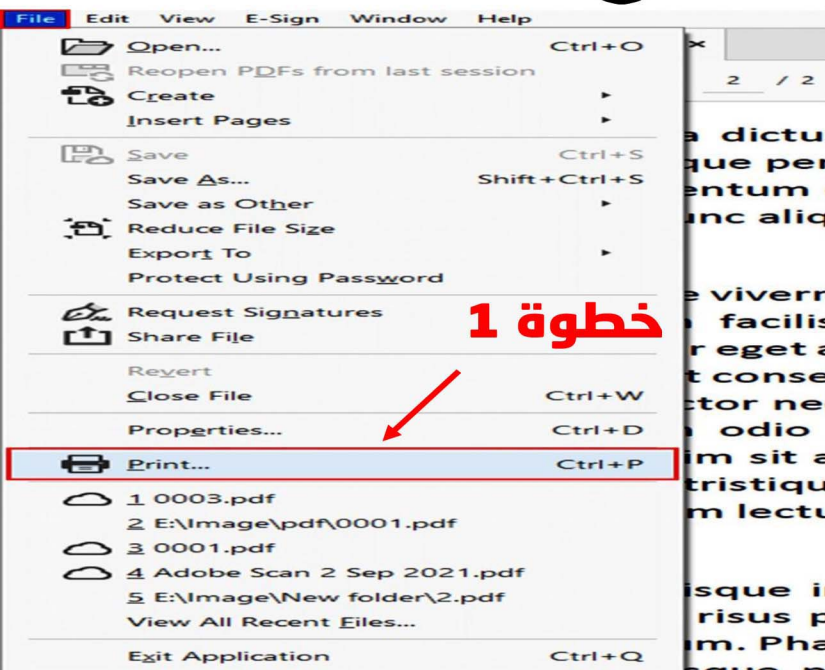
## Model Exam 4

1	1 b	2 d	3 a	4 b
	5 c	6 a	7 c	8 d
2	1 ✗	2 ✓	3 ✗	4 ✓
	5 ✓	6 ✓	7 ✓	

## Model Exam 5

1	1 b	2 b	3 b	4 b
	5 a	6 c	7 a	8 b
2	1 ✓	2 ✓	3 ✗	4 ✓
	5 ✗	6 ✓	7 ✗	

# كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

# المراجعة رقم (2)

## اختبار شهر مارس





## Lesson 5 Sprites Area in Scratch

### 1 Choose the correct answer from a, b, c or d.

- ..... area where sprite or sprites which used in the project appear.  
a. stage                      b. **sprites**                      c. menu                      d. script
- To modify (rename) the sprite name click on .....  
a. **(sprite) and renam it**                      b. (sprite) and delete it  
c. (sprite) and add it                      d. (sprite), change its color
- The purpose of the command (go to random position) is .....  
a. moving the sprite to a selected place                      b. hide sprite  
c. **moving sprite a randomly on stage**                      d. delete sprite
- To add accompanying sound select the block (command) .....  
a. when clicked                      b. say                      c. motion                      d. **sound**
- To add a new sprite click .....  
a. **choose sprite**                      b. stage                      c. motion                      d. when clicked

Answer		Explanation
(1)	b	The sprites which are used in a project appear in sprites area where we can add, delete rename , resize, ..... sprites.
(2)	a	To modify the sprite name use sprites area by clicking on the sprite you want to change its name , then rename it.
(3)	c	The purpose of using the block (command) go to random position is the sprite to move to undefined place in a randomly way.
(4)	d	To add a background sound be accompanying sound to sprite movement select the Block (command) sound then select play sound.
(5)	a	You can add sprites to stage when you want by using sprites area then select choose sprite then a window will appear including a group of sprites to choose from.

### 2 Put (✓) in front of the correct sentence and (x) in front of the wrong one.

- After adding sprite you cannot modify its name. (x)
- The location of the sprite on the stage is determined by the horizontal axis X, and the vertical axis Y values. (✓)





3. Inserting a new background for the project through choose a backdrop. (✓)
4. One sprite only can be added to the stage. (x)
5. You can change the movement direction of the sprite from the block (command) move. (x)

Answer		Explanation
(1)	x	You can modify the sprite name any time by clicking on it in sprites area, then write the new name .
(2)	✓	The sprite location will determined from the value of the axes (horizontal axis x , vertical axis Y) where the stage has x, y axis.
(3)	✓	To insert a new background to your project from choose a backdrop then select a suitable background to your project.
(4)	x	You can add many sprites to your project to appear on stage of the project.
(5)	x	You can change the movement direction of the sprite from sprite area, select the sprite which you want, then change the directing value to a suitable value.

### 3 Complete the following sentences with the appropriate words in brackets.

(Sprites – choose sprite – sprites – Y axis – changing its size value)

1. The sprites which is used in the project appears in ..... area.
2. To know the sprite current location on stage use X axis and .....
3. You can add a new sprite by clicking on .....
4. You can change sprite size from .....
5. You can hide/show the sprite form ..... area.

Answer		Explanation
(1)	sprites	Sprites area contains sprite or sprites which are used in project where from you can control sprite features.
(2)	Y axis	Sprite current position (location) on stage are known form (X axis, Y axis) values.
(3)	choose sprite	To add a new sprite use sprites area then click on choose sprite, then choose the sprite you want.
(4)	changing its size value	To change sprite size use sprites area, then select sprite you want to change, then from size box, change its value.
(5)	Sprites	To show/hide sprite use sprites area then from show/hide icon click on it to show/hide sprite.



## Lesson 6 Principles of Python

### 1 Choose the correct answer from a, b, c or d.

- ..... is considered from python features.  
 a. Payed                      b. Open source                      c. Uninterpreted                      d. Limited-use
- ..... is considered an interpreted (understood) programming language and use words similar to English.  
 a. Python                      b. Java                      c. C #                      d. C ++
- ..... is from python libraries which is used to analyze and processing data.  
 a. NumPy                      b. Pandas                      c. Both a & b                      d. None of them
- To download the program of python after visiting its official website and clicking on download you have to .....  
 a. pay fees                      b. choose version  
 c. choose the system which your device work with (win, linux, mac)  
 d. install the program to your device
- ..... is not from python advantages.  
 a. Open source                      b. Interpreted language  
 c. Multi-use                      d. None of them

	Answer	Explanation
(1)	b	Python language has many features like: open source interpreted, versatility, easy to use, integration and libraries
(2)	a	Python language is one of the easiest languages. It is simple and organized formula and uses words similar to English unlike other programming languages.
(3)	b	Python language has many libraries which you can use, pandas is from python libraries which is used to analyze and process data.
(4)	c	To download python language program to your device you have to: 1. visit the official website for python <a href="http://www.python.org">www.python.org</a> 2. click download 3. select the system which your device work with window, Mac, linux. 4. select 64 bit or 32 bit according to your device.





(5)	d	All of them are python features like open source - free-interpreted - versatility - easy - to use. integration- it is used to develop web applications artificial intelligence - machine learning.
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**2 Put (✓) in front of the correct sentence and (x) in front of the wrong one.**

1. Python language is free and open source. (✓)
2. Python language is used in developing web applications and artificial intelligence. (✓)
3. Python language doesn't have any libraries which you can use. (x)
4. Python language is not used in developing Data science. (x)
5. Python is an interpreted language which means that it translate codes line by line, so if there are errors it will stop till errors corrected by programmers. (✓)

Answer		Explanation
(1)	✓	Python language is considered from free and open source languages.
(2)	✓	Python language is used in developing web applications , data science, artificial intelligence , machine learning.
(3)	x	Python language has a big library which contain big number of libraries to use it as a ready solution without writing code.
(4)	x	Python language is used in developing data science and also web applications, machine learning, artificial intelligence
(5)	✓	Python language is an interpreted language which means that it translate codes line by line, so if it found errors it will stop till programmer correct errors.

**3 Complete the following sentences with the appropriate words in brackets.**  
(pandas - Java - NumPy - open source interpreted versatility - develop applications)

1. Python language can be integrated with other language like C++, C#, .....
2. Python language library which is used in statistics is .....
3. Python language is distinguished as .....
4. Python language contains many libraries like NumPy ..... and matplotlib.
5. Python language can be used in .....



Answer		Explanation
(1)	Java	Python language can be integrated with other language like C# , C++ , Java
(2)	NumPy	In python (NumPy) library is used in data science, statistics and artificial intelligence.
(3)	Open source interpreted versatility	Python language features are many like it is open source and free, interpreted and versatility , integrated, and libraries.
(4)	pandas	Python language contain libraries which contain code ready made to use to solve many problems NumPy used in data science, statistics pandas : used to analyze and process data Matplotlib: used to create graphs and charts.
(5)	develop applications	used to develop web applications, data science artificial intelligence, machine learning games.

## Lesson 7 Variables in Python

### 1 Choose the correct answer from a, b, c or d.

- Variables in programming language express ..... .
  - constant value doesn't change
  - data type
  - A reserved place in memory to store and save a specific value
  - function
- From conditions for naming variables in python ..... .
  - name begins with a letter or an underscore
  - name contains letters (A – Z) , numbers, underscore
  - name shouldn't be a reserved word in python
  - all of them
- Types of variables in python like ..... .
  - numbers (int, float)
  - booleans
  - string
  - all of them
- The function of " ..... " in python is to display text, values on screen.
  - type ( )
  - print ( )
  - editor
  - python's shell







(3)	✗	In python there are integer number int, and decimal number is float .
(4)	✓	In programming language, variables represent reserved places in memory to store and save specific value.
(5)	✓	From conditions for naming variables that , name shouldn't be reserved word in python because it express specific values understand by the language.

### 3 Complete the following sentences with the appropriate words in brackets.

(type – print – Python shell – memory – letter)

1. In programming language variables express reserved places in .....
2. In python language variable name must begin with ..... or underscore.
3. .... is a function used to know variable type in python language.
4. .... is an interactive interface in python.
5. .... is a function used to display text, values on screen.

Answer		Explanation
(1)	memory	In programming language variables express reserved places in memory to store and save values.
(2)	letter	From conditions for naming variables in python language variables name begins with letter or underscore _
(3)	type ( )	The function which is used to know variable type in python language is type ( ).
(4)	Python Shell	The interactive interface in Python is called Python Shell.
(5)	print ( )	The function which is used to display text, values on screen is called print ( ).



**الآن يمكنك تقييم نفسك أولاً بأول**

الجزء الثاني من الكتاب

**EL-MOASSER**

**Interactive Notebook**

**كراسة المعاصر التفاعلية** التي تشتمل على

- تقييمات شهرية
- راجع وتمكن في يوم واحد
- راجع وتمكن في ثلاثة أيام
- اختبارات على المنهج بالكامل
- اجابات كتاب الشرح





### March Test

#### 1 Put (✓) in front of the correct sentence and (x) in front of the wrong one.

1. High accuracy in performing various tasks is one of the features of the robots. ( )
2. Robots are divided into two types only, they are industrial and educational. ( )
3. Industrial measurement systems are from laser rangefinders examples. ( )
4. Controller is considered the robot "brain". ( )

#### 2 Complete the following sentences with the appropriate words in brackets.

(sound waves – Infrared sensors – Remote controls – microphone)

1. .... is from electronic devices which uses sensor devices.
2. Ultrasonic sensors emit .....
3. .... emit infrared rays then receive the returning rays after they bounce off the object.
4. Phone ..... is a sound sensor device that convert the sound you pick up into electrical signals that can be understood by the phone.

#### 3 Choose the correct answer from a, b, c or d.

1. .... is a group of small sensors that sense where your finger touches the screen.  
a. Touch screen                      b. Motion sensor device  
c. Phone microphone                d. Computer screen
2. The second step in sensor work steps is .....  
a. transmission (send signals to another device)  
b. converting signals to another electric signals  
c. taking decisions based on the sensed information  
d. sensing changes in the environment
3. .... is from robot components.  
a. Software                      b. Sensors                      c. Power source                      d. All of them.
4. Software includes ..... that determine how the robot responds to information it receives form sensors.  
a. structure                      b. algorithms                      c. motors                      d. drawings

حمل الآن

مجاناً وحصرياً

# المراجعة رقم (3)

## اختبار شهر مارس







# Exercises

## on Lesson 5

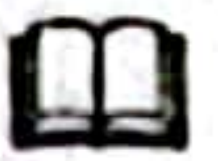











### 1 Choose the correct answer:

- 1 The Sprites Area in Scratch contains .....  
a. backgrounds      b. sprites      c. sounds      d. blocks
- 2 The X and Y values in Scratch represent the .....  
a. size of the sprite      b. direction of the sprite  
c. location of the sprite      d. color of the sprite
- 3 To add a new sprite, click on.....  
a. Choose Sprite      b. Delete Sprite  
c. Rename Sprite      d. Move Sprite
- 4 The "Go to random position" command is found in the ..... group.  
a. Motion      b. Sound      c. Control      d. Events
- 5 The "Pen" extension is added by clicking on .....  
a. Choose Sprite      b. Add Extension  
c. Delete Sprite      d. Change Backdrop
- 6 To make the ball move randomly, use the ..... command.  
a. Go to random position      b. Move 10 steps  
c. Turn 15 degrees      d. none of them
- 7 To draw a geometric shape, you need to set the ..... points of the lines.  
a. random      b. middle      c. start and end      d. none of them
- 8 The "Repeat" command is used to .....  
a. delete a sprite      b. execute actions multiple times  
c. change the backdrop      d. play a sound
- 9 The "When Clicked" command is found in the ..... group.  
a. Sound      b. Motion      c. Control      d. Events
- 10 The "Pen" extension is used to .....  
a. move sprites      b. draw shapes and lines  
c. play sounds      d. change the background






- 11 The "Set Pen Color to" block is used to .....
  - a. change the pen size
  - b. change the pen color
  - c. move the pen
  - d. delete the pen
- 12 The background "Space" is chosen by clicking on .....
  - a. Choose a Backdrop
  - b. Choose a Sprite
  - c. Choose a Sound
  - d. Choose a Motion
- 13 To move the pen to a specific point, use the ..... block.
  - a. Go to x: y:
  - b. Move 10 steps
  - c. Turn 15 degrees
  - d. none of them

## 2 Put (✓) or (X):

- 1  The sprites used in the project appear in the Sprites Area. ( )
- 2  The sprite name can be modified only once. ( )
- 3  The location of the sprite on the platform is determined by the value of the horizontal axis X only. ( )
- 4  The horizontal and vertical axes are used to know the current location of the sprite on the platform. ( )
- 5  To modify the name of the sprite, click on its current name and rename it. ( )
- 6  The direction of the sprite's movement can be changed by clicking on the word "Direction". ( )
- 7  The sprite can be shown or hidden on the platform by clicking on Choose Sprite. ( )
- 8  The size of the sprite is changed by its value in the Sprites Area. ( )
- 9  The sprite can be deleted from the platform. ( )
- 10  Only one sprite can be added to the platform. ( )
- 11  To add a new sprite, click on Choose Sprite. ( )
- 12  The Stop command is used to watch the project execution. ( )
- 13 The "pen down" block makes the pen start drawing. ( )



- 14  A new background is inserted to the project through the programming area. (    )
- 15  The Start command is used to stop the project. (    )
- 16  We use the coordinates (x, y) to locate the point on the stage. (    )

### 3 Complete the following sentences:

- 1 The Sprites Area in Scratch contains the ..... used in the project.
- 2 To add a new sprite in Scratch, click on the ..... button in the Sprites Area.
- 3 ..... block is used to draw a line in Scratch.
- 4 To change the direction of a sprite, modify the ..... value.
- 5 To repeat a set of commands 10 times, use the ..... block from the Control group.

### 4 Match:

Block	Function
1 Go to random position	a. Repeats a set of commands
2 Play sound	b. Starts the program when the flag is clicked
3 Set pen size to	c. Changes the thickness of the line
4 Repeat	d. Makes the sprite move randomly
5 "When Clicked" command	e. Plays a sound effect

1 ..... 2 ..... 3 ..... 4 ..... 5 .....

### 5 Arrange the following steps to create a project where a sprite moves randomly:

- a. Choose "Go to random position" from Motion.
- b. Select "When Clicked" from Events.
- c. Choose "Play sound" from Sound.
- d. Use the "Repeat" block from Control to repeat the action 10 times.














## on Lesson 6

- Python is widely used in ..... .
  - data science
  - machine learning
  - web development
  - all of them
- Python is ..... programming language.
  - a free
  - an open source
  - both a and b
  - none of them
- Python translates programming codes ..... .
  - all at once
  - line by line
  - in batches
  - none of them
- Python is ..... for beginners.
  - difficult
  - easy
  - complex
  - outdated
- Python is known for its ..... .
  - versatility
  - complexity
  - limited use
  - high cost
- Python can be integrated with ..... .
  - C
  - C++
  - Java
  - all of them
- Python has libraries for ..... .
  - data analysis
  - graph creation
  - both a and b
  - none of them
- NumPy library is used in ..... .
  - web development
  - data science
  - game programming
  - none of them
- Pandas is a library for ..... .
  - creating graphs
  - data analysis
  - machine learning
  - none of them



- 10 Matplotlib library is used for .....
- a. creating graphs
  - b. data analysis
  - c. web development
  - d. none of them
- 11 When downloading Python, you must choose .....
- a. the operating system you are working on
  - b. the version number
  - c. the programming language
  - d. none of them
- 12 Python libraries provide .....
- a. complex codes
  - b. limited functions
  - c. pre-built codes and functions
  - d. none of them

## 2 Put (✓) or (X):

- 1  Python is a free and open-source language, which does not allow anyone to develop it. ( )
- 2  It is not permissible to create applications and websites in Python. ( )
- 3  Python is used for data science and machine learning. ( )
- 4  Python is an interpreted language because it translates programming codes line by line. ( )
- 5  Python is used in developing web applications, data science, artificial intelligence, machine learning, and game programming. ( )
- 6  Python is one of the most difficult programming languages. ( )
- 7 Python is a versatile language used in game programming. ( )
- 8  Python can be integrated with other languages, such as C, C++, and Java. ( )
- 9  One of the disadvantages of Python is the lack of libraries that you can use. ( )
- 10  NumPy is a library used in data science, statistics, and artificial intelligence. ( )



- 11 Pandas is a library for analyzing and processing data. ( )
- 12 Matplotlib is a Python library used in artificial intelligence. ( )

**3 Download Python from the official website and arrange the following steps in the correct order.**

- 1 You must choose 64bit or 32bit, depending on your device specifications.
- 2 Visit the official Python website: [www.python.org](http://www.python.org)
- 3 Choose the system you are working on (Windows, Mac, or Linux).
- 4 After downloading, install the program on your device and follow the instructions.
- 5 Choose "Download".

**3 Fill in the blanks:**

- 1 Python is an ..... language, meaning it translates codes line by line.
- 2 Python is ..... source, meaning it allows everyone to use and develop.
- 3 Python can be integrated with other languages, such as ....., ....., and .....
- 4 Python is a ..... language, meaning it is used for web development, AI, and game programming.
- 5 Python ..... are pre-built codes and functions that help programmers perform specific tasks.



# Test Yourself

## on Lessons 5&6

### 1 Choose the correct answer:

- 1 Python is a/an ..... language that translates code line by line.  
a. compiled      b. interpreted      c. assembly      d. binary
- 2 To draw a circle in Scratch, you can repeat drawing short lines at different .....  
a. colors      b. sizes      c. angles      d. none of them
- 3 Python is available for ..... operating system(s).  
a. Windows      b. Mac      c. Linux      d. all of them
- 4 The "Choose Sprite" option is used to .....  
a. delete a sprite      b. change the backdrop  
c. play a sound      d. add a new sprite
- 5 Python is a programming language used in developing .....  
a. data science      b. websites      c. applications      d. all of them
- 6 The "Go to x: y:" block is used to .....  
a. change the backdrop      b. move the pen to a specific location  
c. play a sound      d. delete a sprite
- 7 In Scratch, to start drawing with the pen, use the ..... block.  
a. pen up      b. pen down      c. set pen color      d. none of them

### 2 Put (✓) or (X):

- 1 Python is an open source programming language. ( )
- 2 Sprites cannot be shown or hidden on the platform. ( )
- 3 Python libraries reduce the need to write codes from scratch. ( )
- 4 You cannot insert new backgrounds in Scratch. ( )
- 5 Python cannot be integrated with Java. ( )
- 6 The "Repeat" command is found in the Control group. ( )
- 7 NumPy is a Python library used for creating graphs and charts. ( )
- 8 The horizontal axis in Scratch is represented by X values. ( )







# Exercises

## ON LESSON 7










### 1 Choose the correct answer:

- 1 Variables in programming languages are used to .....  
a. store values      b. delete files      c. create folders      d. none of them
- 2 In Python, variable names can begin with .....  
a. letters      b. underscore  
c. numbers      d. both a and b
- 3 Which of the following is a valid variable name in Python?  
a. 1Ahmed      b. \_Ahmed      c. Ahmed-1      d. Ahmed@1
- 4 The variable names "Taher", "TAHER", and "taher" refer to ..... variable(s).  
a. the same      b. different      c. invalid      d. reserved
- 5  To know the type of the variable statement, we use the function .....  
a. cos ( )      b. type ( )      c. print ( )      d. sin ( )
- 6 Decimal variables in Python are stored as ..... data types.  
a. string      b. int      c. float      d. Boolean
- 7 Strings in Python are placed between .....  
a. single quotes      b. double quotes  
c. both a and b      d. none of them
- 8 Boolean variables in Python can have ..... value(s).  
a. one      b. two      c. three      d. four
- 9 Python variables are .....  
a. case-sensitive      b. case-insensitive  
c. invalid      d. reserved
- 10  To display texts, variables, or even the results of mathematical operations, we use the function .....  
a. cos ( )      b. type ( )      c. print ( )      d. sin ( )




- 11 Text editors, like Visual Studio and PyCharm, .....  
 a. must be downloaded                      b. are installed with Python  
 c. are ignored                                  d. none of them
- 12 The Python Shell is ..... when Python is installed.  
 a. downloaded separately                      b. installed automatically  
 c. ignored    d. none of them

## 2 Put (✓) or (X):

- 1  Variables in programming languages are reserved places in memory to store and save a specific value. (    )
- 2 The value of a variable cannot be changed during the execution of a program. (    )
- 3  The variable name must not begin with a letter or an underscore sign (\_). (    )
- 4  TAHER, Taher, taher, TaheR are 4 names for variables in the Python language. (    )
- 5  A variable name contains letters (A-Z), numbers, or an underscore sign (\_). (    )
- 6  When naming variables, reserved words in the Python language may be used. (    )
- 7 The type ( ) function in Python is used to determine the type of a variable. (    )
- 8  In `Y = 10`, the statement type of variable Y is numeric for an integer. (    )
- 9 The value of a Boolean variable can be "Yes" or "No". (    )
- 10  In `City = "Cairo"`, the statement type of the variable City is text. (    )
- 11  In `Is_taher_student = False`, the statement type of the variable Is\_taher\_student is logical. (    )
- 12  To know the type of the variable, we do not need to use the type ( ) function. (    )



- 13  The texts of variables are placed between single quotation marks ' ' or double quotation marks " ". (    )
- 14 PyCharm is an example of a text editor used for Python programming. (    )

3 Complete the following sentences:

- 1 ..... in programming languages are used to store and save specific values.
- 2 In Python, variable names must begin with a ..... or an underscore.
- 3 Strings in Python are placed between ..... or double quotes.
- 4 The ..... function in Python is used to display texts or values on the output screen.
- 5 The ..... in Python is used to write and execute simple codes directly.

4 Match:

Variable Type	Example
1 String	a. X = 5
2 Boolean	b. A = 10.75
3 Integer	c. City = "Cairo"
4 Float	d. Is_taher_a_teacher = True
5 Reserved word	e. False

1 .....    2 .....    3 .....    4 .....    5 .....

5 Correct the errors in the following:

- 1 1st\_variable = 100 .....
- 2 name = 'Ahmed .....
- 3 print ("Hello World" .....
- 4 city = 'Cairo" .....
- 5 age = "13" .....



حمل الآن

مجاناً وحصرياً

# المراجعة رقم (4)

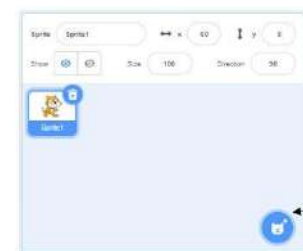
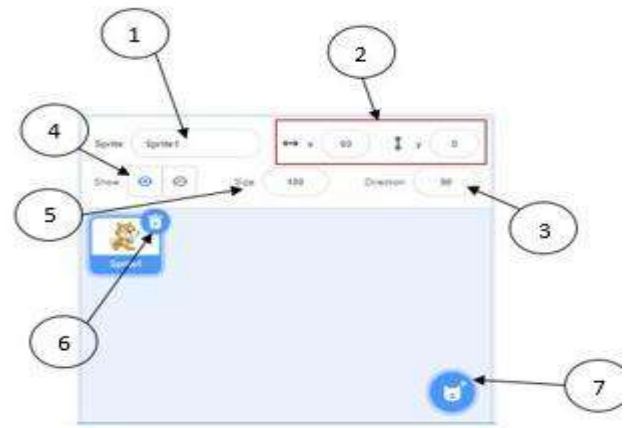
## اختبار شهر مارس



## الدرس الخامس : منطقة الكائنات في برنامج سكراتش

### Sprites area (contains the sprites used in the project)

- 1- The name of the sprite (you can modify it by clicking on it and renaming it).
- 2- The location of the sprite and determines it (the horizontal axis is the X values and the vertical axis is the Y values, note the current location of the sprite (cat) on the platform is ((60,0)
- 3- The direction of the sprite's movement: (You can change the direction by **changing the Direction value**).
- 4- Show or hide the sprite on the platform.
- 5- The size of the sprite and its value can be changed.
- 6- Delete the sprite from the platform.
- 7- Add a new sprite Choose Sprite.



### Add a new sprite:

- Click on- Choose Sprite

-Choose Basketball

- Remove the cat object from the stage





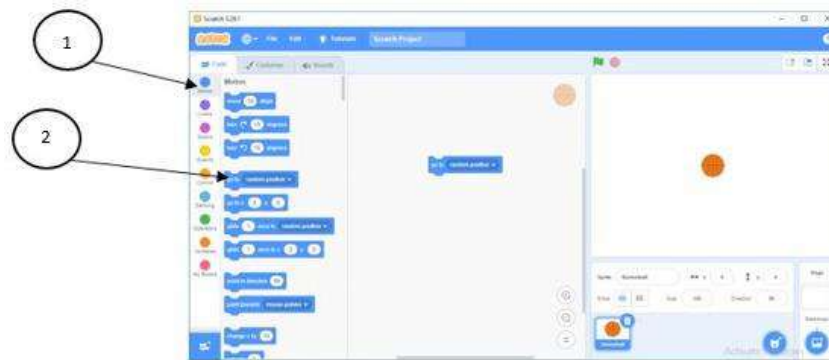
## Project 2:

Required to move the ball randomly on the platform while making a sound for the ball and repeating this 10 times

Project creation steps:

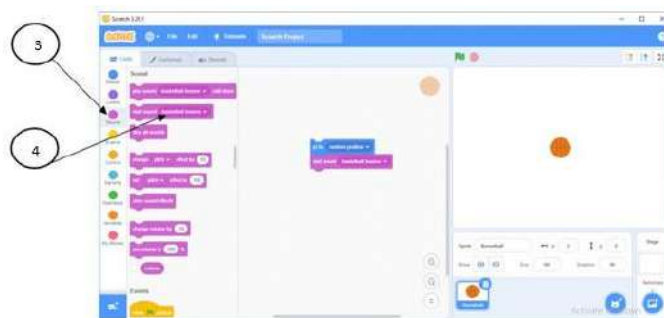
1-From Motion

2-Choose the Go to random position command



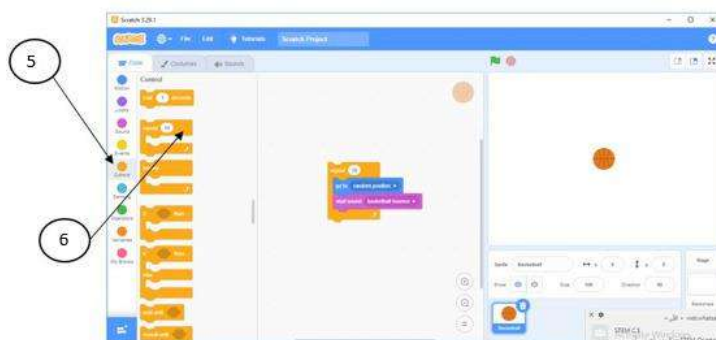
3-From Sound

4-Choose the command Play sound



5-To repeat the movement 10 times from Control

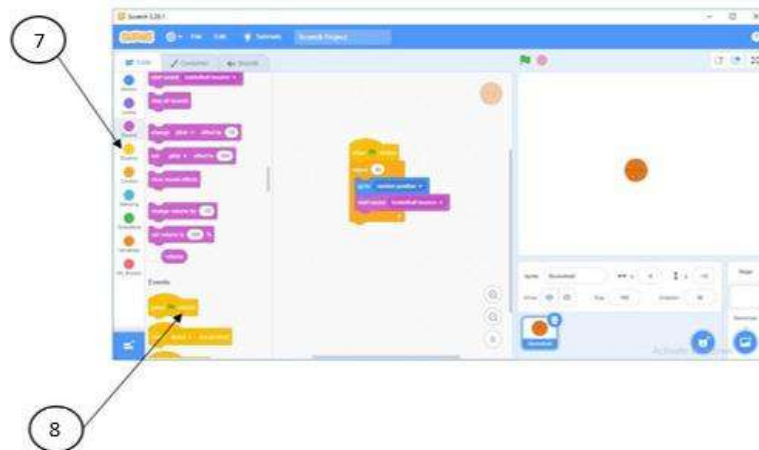
6-Choose the Repeat command.



7-From Events

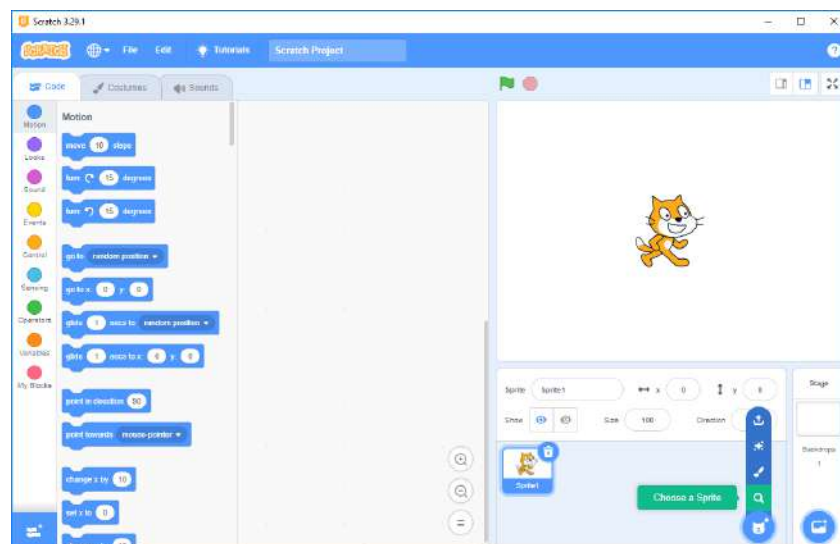
8-Choose the "When Clicked command"

9- Test the execution of the project

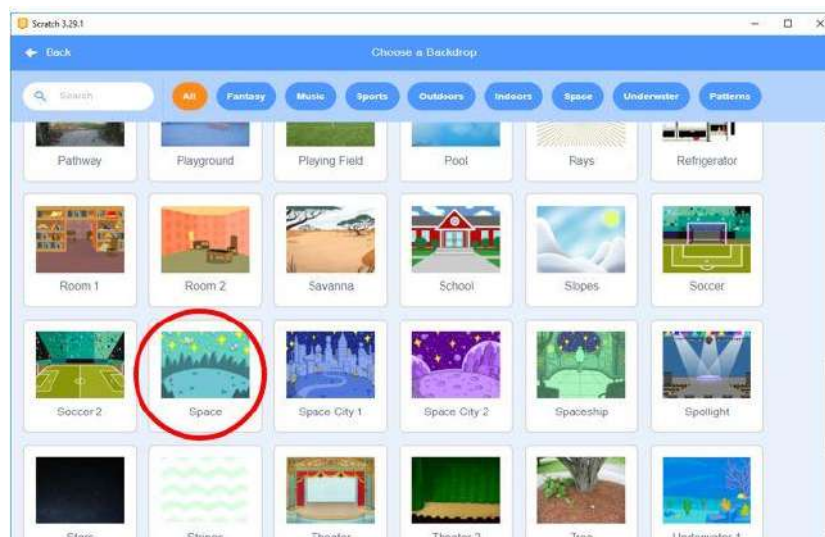


## Project (3) Spaceship

-Insert a new sprite Rocketship



-Insert a new background by clicking on Choose a Backdrop, browse through the different backgrounds and then choose "Space".







## Square Drawing Project:

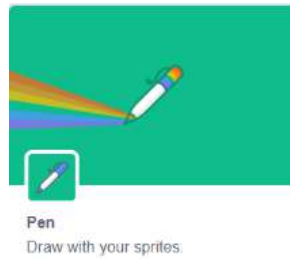
### Square Drawing Project:

1. **Open a new project:** Open Scratch and start a new project.

2. **Select the pen:** We will use the "pen" to draw our picture. In the code area, find the "pen" section and drag the "pen" block down. This block will make the pen start drawing

#### note:

By clicking on Add Extension the pen , blocks will appear as shown in the figure.



Blocks will appear as shown in the opposite figure:

3. **Setting Color and Size:** Before you start drawing, you can set the line color and size using the blocks in the "Pen" section. For example, you can use the "Set Pen Color to" block to choose a specific color, and the "Set Pen Size to" block to set the line thickness.

4. **Moving the Pen:** Now, we will move the pen to draw the shape we want. Use the "Go to x:y:" block to set the starting point, and then use the "Go to x:y:" block again to set the ending point. This will make the pen draw a straight line between the two points.

5. **Repeating Steps:** Repeat the previous steps to draw more lines and form the shape you want.

#### Notes:

- **Drawing different shapes:** You can draw any geometric shape by setting the start and end points of the lines appropriately.
- **Adding details:** You can add details to your image such as eyes, mouth, and ears.

## Project: Drawing a circle

To draw a circle, you can use the "Repeat" block to repeat the process of drawing short lines at different angles, this helps with the circle drawing effect.







## Questions and exercises

Put ✓ or X:-

1. The sprite name can be modified only once ( )
2. To modify the name of an object, click on its current name and rename it ( )
3. Only one sprite can be added to the platform ( )
4. The sprite can be deleted from the platform ( )
5. The Stop command is used to watch the project execution. ( )

### Lesson Six: Principles of Python

#### Python language definition:-

The first version of the language was in 1991 .

It is a programming language It is widely used in:-

- Data Science
- In machine learning,
- For website and application development

#### Features of Python language :

**1-Open source:** Python is free and open source, allowing everyone to use and develop it.

**2. Interpreted language:** Which means that it **translates programming codes** line by line, so if there are errors in the program code, it will stop working, as programmers can quickly find errors in the codes.

**3. Versatility:** It can be used in developing web applications, data science, artificial intelligence, machine learning, and game programming.

**4. Easy-to-use language:** It is one of the easiest programming languages for beginners because of its simple and organized formula and uses words similar to English, unlike other programming languages.

**5. Integration:** Python can be integrated with other languages such as C, C++, and Java, and it can also be used in developing multi-platform programs.

**6. Libraries:** Python has many libraries that you can use.



## Python Libraries

They are pre-built codes and functions that help programmers perform specific tasks without having to write codes from scratch, libraries are a powerful tool that increases the efficiency and effectiveness of programming using Python, as they provide ready-made solutions to many common problems or requirements.

like:

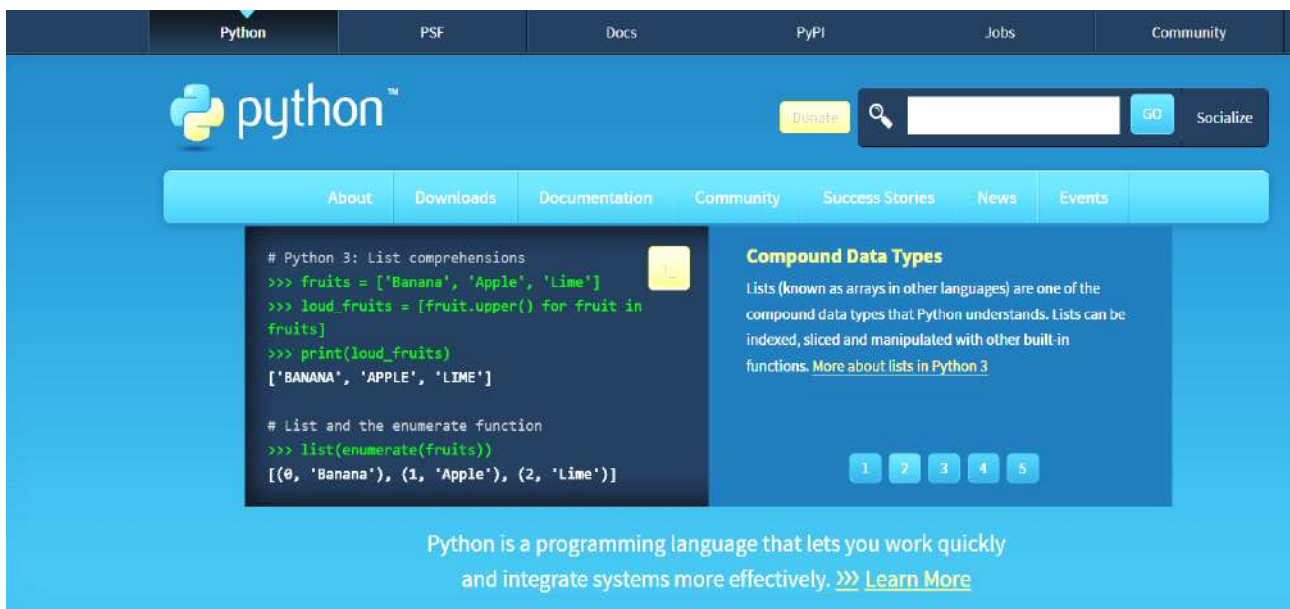
**NumPy:** is a library widely used in data science, statistics, and artificial intelligence.

**Pandas:** is a library for analyzing and processing data.

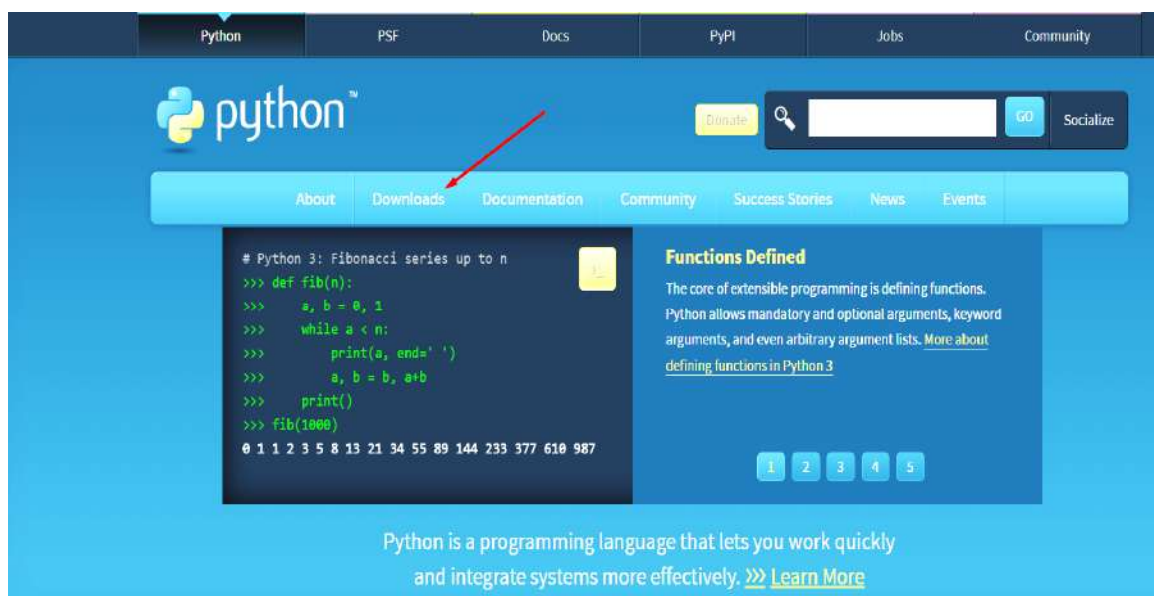
**Matplotlib:** is a library for creating graphs and charts

## How to download the program from the official website:

1. Visit the official Python website [www.python.org](http://www.python.org)

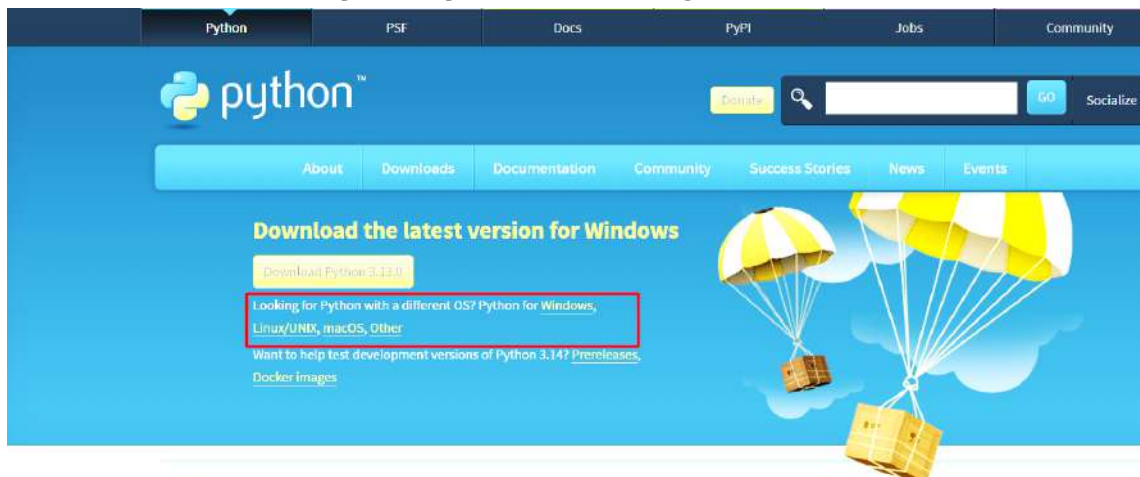


2. Select "Downloads"





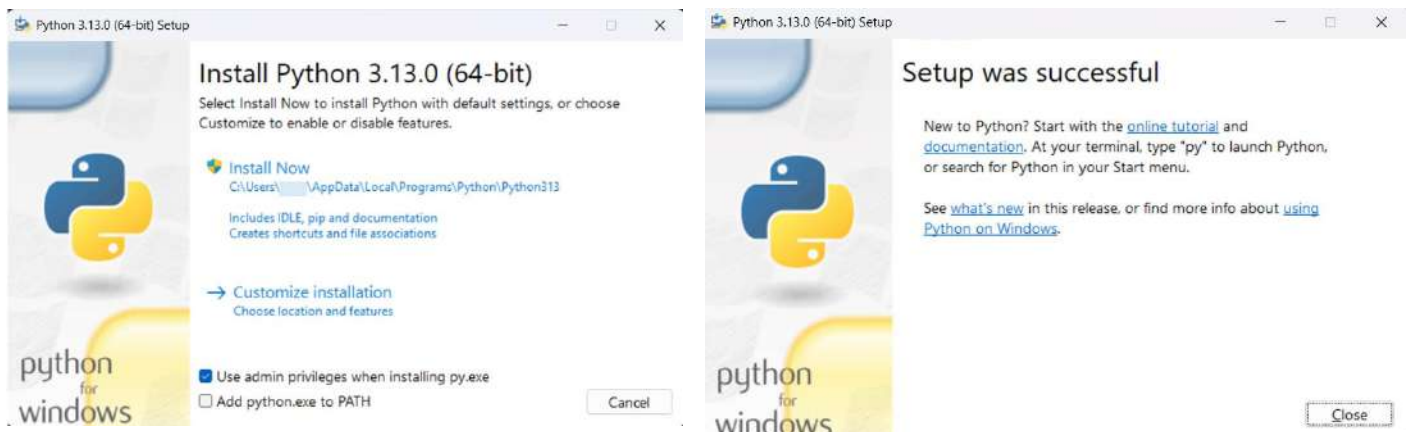
3. Then choose the system you are working on (Windows, Mac, or Linux).



4- You must choose 64 bit or 32 bit, according to your device specifications.



5-After downloading, install the program on your device and follow the instructions







## Questions and exercises

Put ✓ or X:-

1. Python is a free and open source language ( )
2. It is not permissible to create applications and websites in Python ( )
3. Python is one of the most difficult programming languages ( )
4. Python can be integrated with other languages such as C++ C# java ( )
5. Python is an interpreted language because it translates programming codes line by line. ( )

### Lesson 7: Variables in Python

#### Definition of variables :-

Variables in programming languages express a reserved place in memory to store and save a specific value, where the value can change (example: Taher= 20) In this example, we expressed a variable named (Taher) and its value is equal to (20), where you can change the value of the variable while dealing with the program immediately during the execution of the program

#### Conditions for naming variables in Python:

1. The variable name begins with a letter or an underscore \_.
2. The change name contains letters (A-Z) or numbers or an underscore \_
3. Reserved words may not be used in Python because they express specific values that the program understands (example: False) A reserved word within the program is a word that indicates a reserved value (logical value)

**Note** When writing a variable name, you must take into account placing the variable names in upper and lowercase letters (example: TAHER, Taher, tahir, TaheR) In the previous example, the variable names refer to four variables and not one variable.

#### Types of variables in Python

**1- Numbers:** Used to store numerical values such as integers (int) and decimals (float).

**Integer variables:**

X= 5

Y= 10

**Decimal variables:**





Z= 5.25

A= 8.32

**2- Strings:** Used to store texts such as names and addresses.

Texts are placed between single quotes ' ' or double quotes " "

Name = "Taher"

City = 'Cairo'

**3- Booleans:** A data type that contains only two values True or False

Often used in comparisons and decision making in codes

Is\_taher\_student = False

Is\_taher\_a\_teacher = True

### » Python program interface

- 1- Through the interactive Python Shell interface, you can write **simple** codes and execute them directly to see the results.
- 2- The Text Editor allows you to write longer, more complex codes and save them for later execution

**Print function( )** In Python it is one of the most used functions, as it is used to display text or values on the output screen and can be used to display text, variables, or even the results of mathematical operations

### Questions and exercises

**Put ✓ or X:-**

1. The variable name must not begin with a letter or an underscore. ( )
2. Variables in programming languages are a reserved place in memory to store and save a specific value ( )
3. When naming variables, you may use reserved words in Python ( )
4. To know the type of a variable, we do not need to use the type() . function ( )



# كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

